Flightfax

ARMY AVIATION RISK-MANAGEMENT INFORMATION

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Food for thought. *Historically, human performance has been a factor in 80 percent of all aviation accidents, both military and civilian. The human factor in accidents is one thing digital source collectors have the potential to reduce. The DSC is an asset that provides valuable assistance in accident investigation. But more importantly, it provides commanders a training resource to ensure "command presence" on all flights and a maintenance tool to reduce maintenance costs.*

—BG Burt S. Tackaberry, Commanding General, U.S. Army Safety Center

The IP announces over the intercom, "Simulated engine failure."

You think to yourself, "No problem." It's your APART checkride, and you've expected this. You smoothly but deliberately reduce collective, scan the instruments, and then look outside for a place to land. You quickly determine that you're going to have to do an autorotation with turn. Again, no problem. You have more than 200 hours in the aircraft and know exactly what to do. Everything is going fine when, all of a sudden, the master warning audio and light come on.

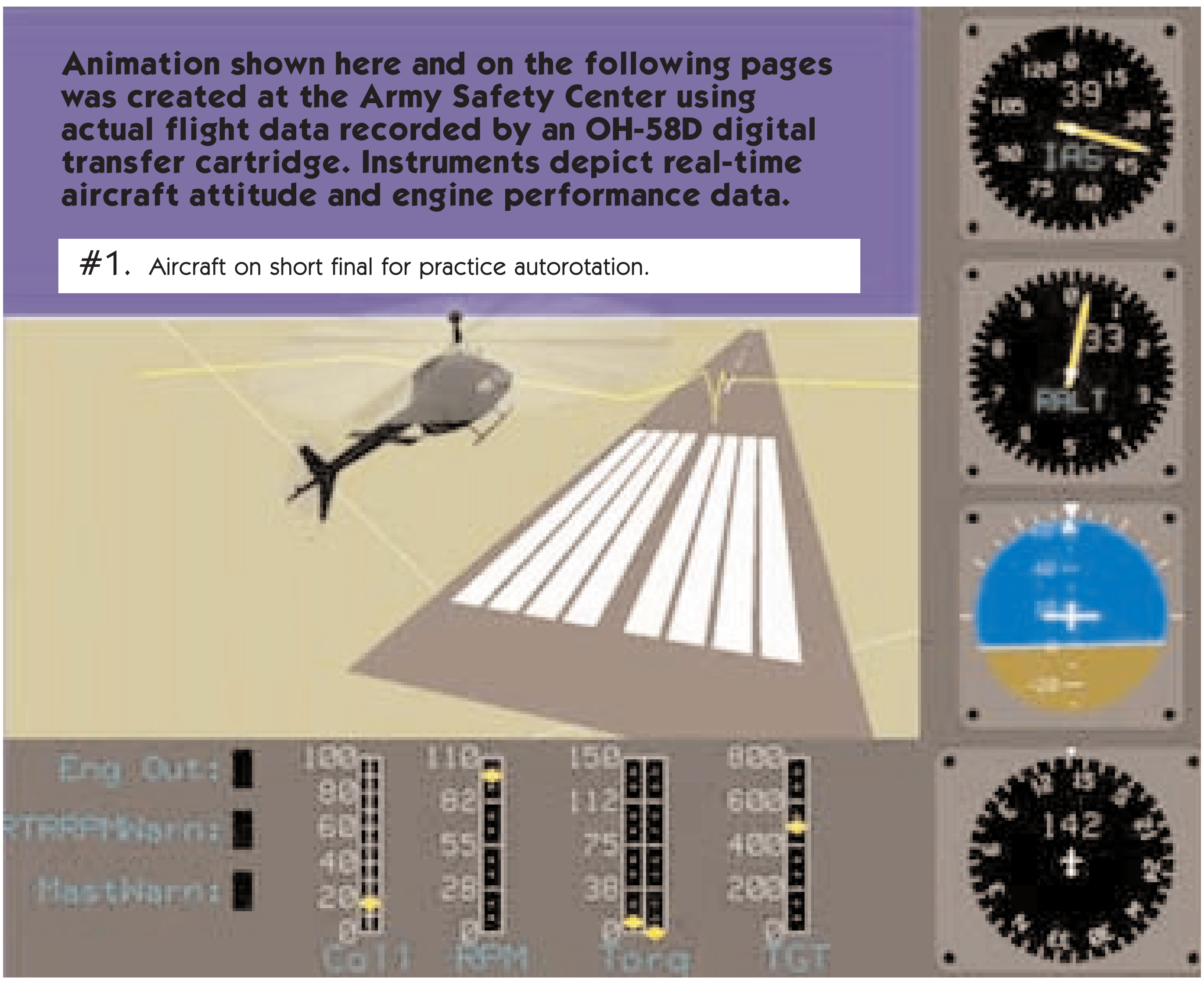
What's wrong? You've done everything right. The IP takes the controls, telling you that you've had an engine NP overspeed. He declares a precautionary landing and safely lands the aircraft.

There was a time when such an incident would have resulted in routine replacement of a $37,000 engine module. However, this aircraft was equipped with a digital source collector (DSC), and the data retrieved from it assured maintenance personnel that there was no need to replace the engine module. As an added bonus, the DSC showed that there were no crew-coordination problems.

A bit of history

The Army's Digital Source Collector Program began in 1986 when, in response to a series of suspected flight-control problems in the UH-60A, the Army Chief of Staff directed procurement and installation of flight-data recorders (FDRs) in the Black Hawk fleet. By 1987, a commercially available tape-type interim crashworthy FDR (ICFDR) had been installed on 196 UH-60A aircraft. The program gathered flight data for several years and assisted in more than a few accident investigations. However, the ICFDR was heavy, and it was installed in the tail section, which made data retrieval difficult. Over time, the Army stopped funding the program.

In 1991, the Army Aviation Center, PEO Aviation,



Animation shown here and on the following pages was created at the Army Safety Center using actual flight data recorded by an OH-58D digital transfer cartridge. Instruments depict real-time aircraft attitude and engine performance data.

#1. Aircraft on short final for practice autorotation.

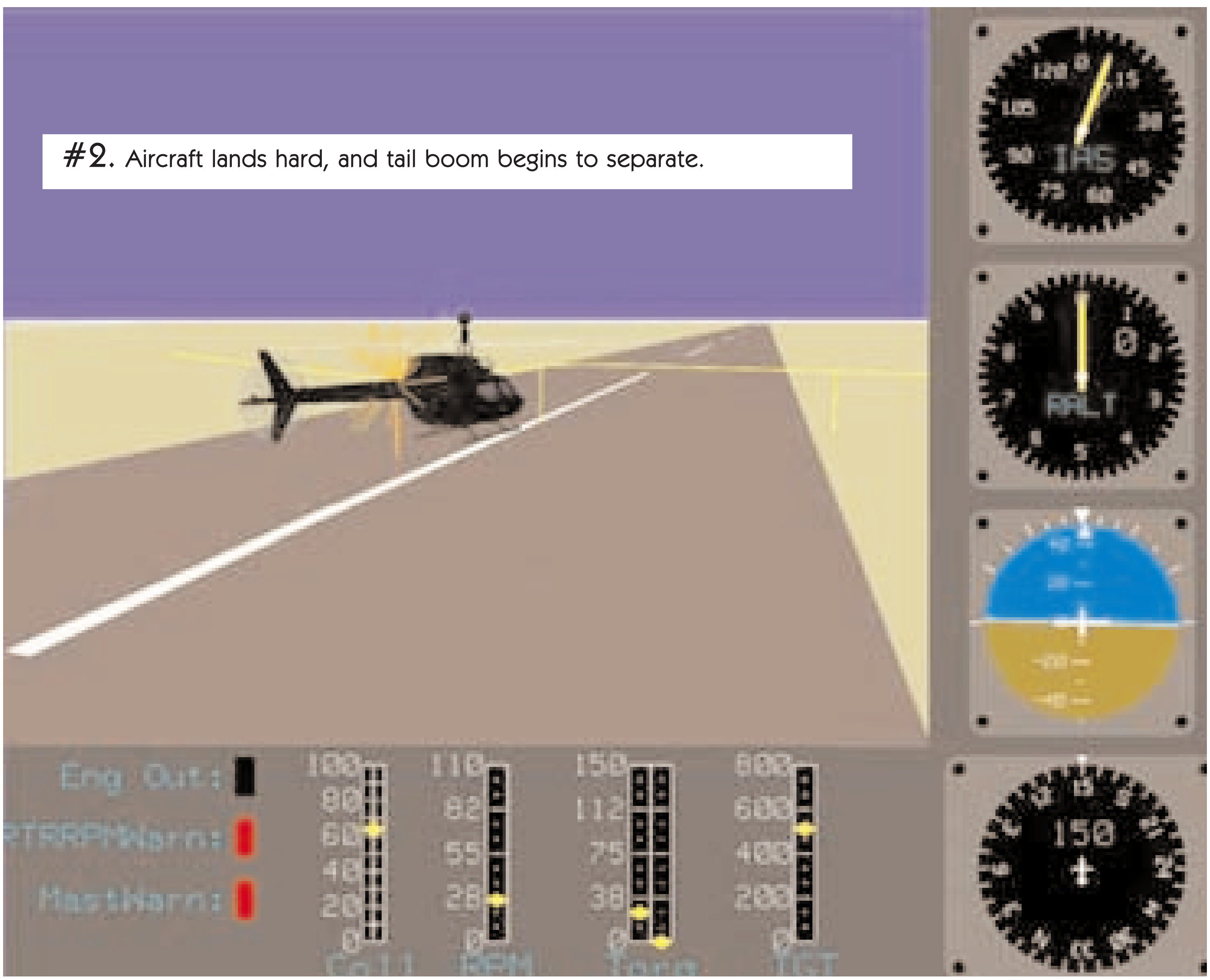
ATCOM (now AMCOM), and the U.S. Army Safety Center established a unified approach to acquiring and fielding a solid-state FDR for the Army's front-line combat aircraft: OH-58D(I), AH-64A, MH-60K, MH-47E, and AH-64C/D. Within a year, though, an executive steering group (ESG), realizing that FDR technology had leapt far beyond the scope of the original contract, terminated the contract for a solid-state FDR.

The next step was to study the feasibility and benefits of a flight data/maintenance recorder (FD/MR). The ESG wanted to know whether or not an FD/MR could provide maintenance prediction and diagnostics as well as support accident investigation. The study found that, while an FD/MR approach would result in significant cost savings, the Army lacked the necessary infrastructure to use FD/MR data. The conclusion was that fielding of a solid-state FDR should not wait for development of an FD/MR infrastructure.

During the summer of 1994, PM OH-58D and Safety Center demonstrations at Fort Rucker showed that an off-the-shelf solid-state FDR could successfully record required flight data in Army aircraft without an expensive and heavy installation package. The Navy and Coast Guard have since completed similar efforts and entered into contracts to field new-generation solid-state FDRs. In May 1995, an FDR Joint Service Process Action Team (JPAT) was chartered to promote inter-service cooperation, standardization, interoperability, information exchange, and support for FDR data reduction, analysis, and presentation system development.

During the spring of 1995, the program manager for aircrew integration systems (PM ACIS) requested that a program be developed to install a limited number of solid-state FDRs on OH-58D(I) helicopters at Fort Rucker. About the same time, the Army aviation leadership coined the term "digital source collector" to capture the full spectrum impact of maintenance, training, human-performance, and accident-investigation uses of FDR data.

A team composed of representatives from PM



#2. Aircraft lands hard, and tail boom begins to separate.

ACIS, PM OH-58D, the Army Aviation Center, the Army Safety Center, and ATCOM was created to develop the program. Called the "DSC Demonstration Program," the effort is ongoing and is being funded by PM ACIS. The effort includes installation of DSCs on 20 aircraft: 6 OH-58D, 3 AH-64A, 5 UH-60A/L, and 5 CH-47D helicopters and 1 C-12 fixed-wing aircraft. In addition, PM Night Vision/RSTA supports the DSC Demonstration Program through installation of the ANVIS-HUD on UH-60A/L and CH-47D aircraft. The DSC and ANVIS-HUD installations will demonstrate a simple and inexpensive method of recording limited flight data.

Looking to the future

The Army's FDR Program includes all recorders—solid state and tape type—on all Army aircraft. The list includes—

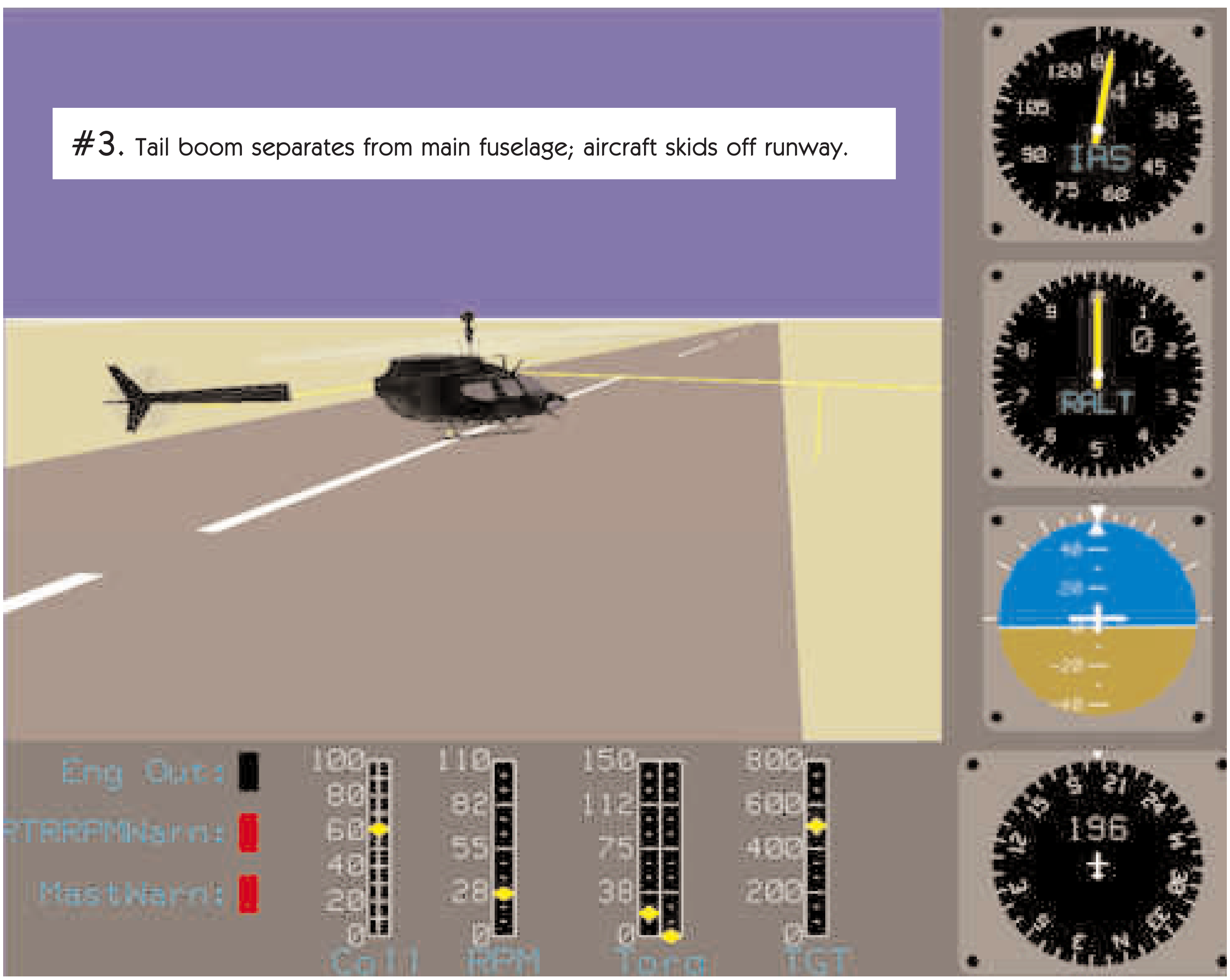
- The Digital Transfer Cartridge (DTC) on the OH-58D Kiowa Warrior.
- The Smiths Voice and Data Recorder on special ops and DSC Demonstration Program aircraft.
- The Fairchild Cockpit Voice Recorder on fixed-wing aircraft.
- The Strategic Technology System Maintenance Data Recorder being installed on the AH-64D Longbow Apache.

The Army Safety Center is working on the capability of downloading all these recorders. What will this mean to users in the field? Once a recorder is downloaded, the Safety Center will be able to animate flight data and even recreate actual flights. The resulting images could then be transferred to videotape.

A series of articles in upcoming issues of *Flightfax* will highlight each of the four types of recorders, with emphasis on information relevant to the user.

—Mr. Jody Creekmore and Mr. John Mainwaring, Research Analysis and Maintenance, Inc., prime contractor on DSC Demonstration Program, DSN 558-2259/1178 (334-255-2259/1178), creekmoj@safety-emh1.army.mil, mainwarj@safety-emh1.army.mil

About the authors: Both are graduates of the United States Military Academy and provide the Army Safety Center engineering and mishap-investigation support involving DSCs.



#3. Tail boom separates from main fuselage; aircraft skids off runway.

A look at official messages

Safety-of-flight (SOF) messages and Army safety action messages (ASAMs) are mandatory directives that must be complied with by all users identified in the message. However, some of them offer commanders the opportunity to share in the ultimate risk decision based on their unique mission profiles.

It is impossible for every hazard associated with every mission to be included in a single message. Therefore, in addition to complying with the direction contained in official messages, commanders at all levels should dissect each and every one, and apply the risk-management process from their own mission perspective.

Very few messages identify hazards and risk levels, although we know that, in general, SOF messages mitigate medium to high levels of risk and that ASAMs deal with low risk levels (AR 95-1). One recent SOF message provides an excellent example of how commanders should apply the risk-management process to an official message.

An Army Safety Action Team (ASAT) determined that use of fueled extended-range fuel systems (ERFS) on UH-60 and AH-64 helicopters was a high-risk hazard. The resulting SOF message informed commanders that this high level of risk would exist in any operations with fueled ERFS. The SOF instructed the chain of command to apply the risk-management process at all levels to reduce the high level of risk.

This message made it clear that not all hazards and controls had been identified. It mandated that all levels of command identify their own residual hazards and develop the controls they deemed necessary to reduce the risk level to meet local requirements.

Aviation commanders have a valuable asset to assist in applying the risk-management process to messages—their aviation safety officer (ASO). School-trained ASOs have been trained in risk management. Accident prevention is the ASO's major duty, and he or she can serve as the organization's "honest broker" who can assist and advise the commander on all matters of concern—even official messages. At the very least, the ASO can assess the controls identified in the message to determine if they are sufficient for the unit's mission profile. Being intimately familiar with unit missions, the ASO can identify hazards, assess risks, develop sound controls, and make recommendations that are tailored to the unit's particular and unique missions. For this reason, commanders should consider including the unit ASO in their official message distribution list.

Users Armywide should automatically apply the risk-management process to every message—not only to those that specifically require it. As we do so, we'll create a safer environment for this very risky business we're in.

—MSG Ruben Burgos, Aviation Systems & Investigation Division, USASC, DSN 558-3650 (334-255-3650), burgosr@safety-emh1.army.mil

The Army Aviation Broken Wing Award recognizes aircrewmembers who demonstrate a high degree of professional skill while recovering an aircraft from an inflight failure or malfunction requiring an emergency landing. Requirements for the award are in AR 672-74: Army Accident Prevention Awards.

■ CW2 Gerald A. Carroll

Kentucky Army National Guard
Frankfort, KY

CW2 Carroll was at the controls of one of seven UH-60s being ferried cross country for annual training. Weather required that all crews file IFR and maintain a 15-minute en route separation. The first two legs were completed without incident.

After refueling and completing a through-flight inspection, CW2 Carroll took off on the third leg at 1545. ATC instructed him to climb to 9000 feet msl.

About 5 minutes after leveling off at the assigned altitude, the crew heard a loud grinding noise coming from the vicinity of the No. 2 engine. After 5 to 7 seconds, the grinding noise stopped, followed by an explosion. The low-rotor warning horn activated immediately, followed by loss of Nr signal. In addition, the No. 2 hydraulic pump, main transmission oil pressure, chip RH input module, chip main module sump, No. 2 main generator caution, and backup pump advisory lights illuminated. The transmission pressure then fell to zero.

CW2 Carroll lowered the collective to full down while adjusting airspeed for autorotational descent. The PC retarded the No. 2 PCL to idle, set the transponder to emergency, and made a call on UHF guard frequency that the aircraft was experiencing transmission problems and was in emergency descent.

ATC responded that an airport was about 6 miles away at their 6 o'clock position, and CW2 Carroll turned right toward that location. A broken layer of clouds was at 5000 feet, but there was a clear area large enough to see to the ground and maneuver the aircraft to the airport. Due to loss of transmission oil pressure, CW2 Carroll continued his autorotational descent to keep the rotor aerodynamically loaded in case the main transmission seized. He maintained rotor rpm by visual observation of the tip path plane, comparison of rotor and engine noises, and by "feel."

Upon reaching 2000 feet with a rate of descent of 3000 fpm, CW2 Carroll maneuvered the aircraft from an extended left base for a 270-degree runway landing at the uncontrolled airport. As the aircraft descended through 500 feet, he prepared for a touchdown autorotation, not knowing whether or not the main transmission would respond to engine input when power was applied.

As the aircraft reached 100 feet agl, he initiated a cyclic flare followed by collective cushion. The aircraft touched down with approximately 30 knots forward airspeed, and a roll-on landing was completed with no damage to the aircraft or injuries to the crew.

Postflight inspection revealed catastrophic failure of the right input module, loss of all transmission oil, and damage to the airframe and main rotor system due to exploding debris from the input module.

■ CW4 Dennis P. Hallada

Michigan Army National Guard
Grand Ledge, MI

CW4 Hallada was pilot in command of an AH-1F on the second leg of a cross-country ferry flight. He was in the front seat, flying unaided at night with zero illumination. The terrain below was rolling and wooded with residential housing adjacent to an interstate highway, where moderate traffic was moving at 65 mph. Highway signs were located along the road, and high-tension wires crossed the road at every-other exit ramp.

The Cobra was at 1300 feet agl in cruise flight at a moderate power setting when the engine chip detector and master caution lights came on. Fearing that the engine would fail before he could reach the nearest airport 4 miles away, CW4 Hallada initiated a clearing turn to search for a suitable landing area. About 10 to 15 seconds later, he felt a yaw and heard sharp reports from the engine area. Suspecting a compressor stall, he reduced power and maneuvered the aircraft for landing to the highway.

During the prelanding check, CW4 Hallada discovered that the landing light fixed to the skid had shifted during flight and was now pointing up toward the main-rotor blades. Five to ten seconds after the first compressor stall, the aircraft yawed again, accompanied by more sharp reports followed by total engine failure. CW4 Hallada entered autorotation and continued the turn to land with the flow of traffic. He maintained airspeed at 70 knots until touchdown so as to better merge with traffic. As the aircraft skidded down the highway, he slid left to keep the right lane free for traffic. His high touchdown speed and the askew landing light helped avoid an aircraft-automobile collision.

Time from onset of the emergency to landing without damage or injury was less than 90 seconds.

■ CW2 Drew R. Holt

4-227th Aviation Regiment, 1st Cavalry Division
Fort Hood, TX

CW2 Holt was administering an APART and NVG currency checkride in a UH-60A. Just after the PI (left seat) performed an NVG takeoff, as the aircraft turned onto the downwind leg and climbed through 400 feet agl, the crew lost visual contact with the ground. CW2 Holt radioed the tower that they were entering IMC and took the controls from the PI.

As CW2 Holt initiated a level climb, the PI removed his NVGs, turned the transponder to emergency, and radioed flight operations of the emergency. ATC transitioned the aircraft to conduct the ILS approach.

During descent on final approach, CW2 Holt regained visual reference at about 400 feet agl. When the aircraft reached 20 feet at 40 knots in preparation for landing, the No. 1 tail rotor drive shaft sheared, causing loss of directional control. The aircraft suddenly began an uncommanded right spin.

CW2 Holt “worked” the tail rotor pedals to diagnose the situation but received no response, and the right spin accelerated. Realizing he had lost his tail rotor, he told the PI to shut down the engines. The rate of spin then decreased. The aircraft struck the runway upright and turning, then flipped onto its right side. All three crewmembers walked away.

■ CW2 James B. Smith

Louisiana Army National Guard
New Orleans, LA

CW2 Smith was the IP on a VFR training flight in a UH-1H. During cruise at 5500 feet msl and 100 knots, the aircraft yawed left, and the rpm warning light illuminated. With the rpm audio sounding intermittently, CW2 Smith immediately took the controls and lowered the collective. N1 fluctuated at approximately 80 percent, and N2 tachometer indications were at first erratic and then went to zero. Concluding that the engine was still operating and believing that the N2 tachometer had failed, CW2 Smith increased collective, but rotor rpm decayed to 260. He immediately lowered collective, and rpm slowly returned to normal range.

At 3500 feet msl and 100 knots, after confirming that the throttle was open, CW2 Smith placed the governor switch into the emergency position, but N1 did not change. At that time, he began a descent toward what appeared to be an open field.

At about 1800 feet msl, CW2 Smith determined that the field was unsuitable due to thick brush and small trees. He decided to land to a road parallel to the field. Avoiding wires on the west side and tree branches overhanging the east side of the road, he managed to land the aircraft safely. The only damage involved dents from 1- to 2-inch branches hitting the bottom of the main-rotor blades.

■ CW2 Robert N. Smith

B Company, 1-212th Aviation Regiment
Fort Rucker, AL

CW2 Smith was conducting an out-of-ground-effect hover check over a tactical training site with a rated student pilot at the controls of an OH-58C. During the ascent portion of the maneuver, the aircraft drifted slightly over the trees and climbed to 110 feet agl, placing it about 50 feet above the highest obstacle. As the student began a left-pedal turn, the aircraft began a series of uncommanded 30- to 40-degree yaws with corresponding uncommanded changes in altitude due to engine surges. N2 was fluctuating from 100 to 65 percent. CW2 Smith took the controls just as the aircraft began a series of violent yaws and started settling toward the 40- to 50-foot trees. After initiating emergency procedures for engine surges, he began maneuvering the aircraft toward an open field about 150 feet away. Using throttle and collective, he was able to maintain control until clearing the trees, at which time the aircraft was yawing violently more than 60 degrees and he was no longer able to maintain control under reduced power conditions. He closed the throttle and executed an emergency low-level, low-airspeed autorotation. At about 20 feet, he applied aft cyclic to zero out forward airspeed and applied sufficient collective at 10 feet to reduce his rate of descent in preparation for landing to a 7-degree slope. He landed the aircraft without damage or injury. Elapsed time from onset of the emergency to termination was 15 to 20 seconds.

Shortfax
Keeping you up to date

Attention UH-1 users

In a 25 February 1998 AMCOM message, PM Utility Helicopters updated the status of restrictions on UH-1 aircraft with T53-L-13B (P/N 1-000-060-22) installed engines. Following is a summary of that message.

Background

SOF message UH-1-98-02 (TB 1-2840-229-20-13), issued 21 November 1997, imposed restrictions on all UH-1 aircraft with T53-L-13B engines installed. That action was taken as a result of continuing failures of the T53 N2 drive train.

Update

From August 1996 through January 1998, 22 spur-gear-related mishaps occurred—1 Class B, 2 Class C, and 19 Class E. At current optempo, we can expect an average of 1.25 to 1.50 mishaps per month to occur.

A T53 Blue Team was formed at AMCOM in December 1997 to identify and isolate the root cause of the failures and develop an action plan to lift flight restrictions as soon as possible. The Blue Team's activities to date and emerging results are as follows:

■ The spur gear failure is caused by a high-cycle vibration that induces high strain levels within the gear, resulting in a fracture. Testing is ongoing to isolate the source of the vibration. Although the source is still unknown, there is high confidence that it is within the engine itself.

■ Potential corrective actions to safely lift flight restrictions are being evaluated. At this time, no action that can be implemented by field units has been deemed sufficient to relieve flight restrictions. Several approaches, to include replacing the N2 spur gear with an original-equipment manufacturers part and nondestructive testing of the carrier assembly, are apparently being marketed as means to lift flight restrictions. **None of these are approved for use by Army units.**

■ No quick corrective actions are anticipated. Best estimates are that corrective actions will begin implementation in 6 to 12 months and that implementation across the entire UH-1 fleet will take 18 to 24 months.

On 17 February 1998, an Army Safety Action Team (ASAT) met to review the status of Blue-Team efforts and consider additional action that may be required. Based upon the data presented there, a follow-on session with Aviation Center, Army Safety Center, AMCOM, and selected operational users was conducted to consider AMCOM's draft system-safety risk assessment and address alternative courses of action. Attendees discussed modification of current flight restrictions, and a revised SOF message is expected to be issued shortly. In addition, a video is being produced to provide information on the failure mode, how to recognize it in flight, and proper procedures to follow when it occurs. That tape will be available to augment unit aircrew training.

POC: Mr. Wally Newcomb, APM UH-1, AMCOM, DSN 645-8769 (205-955-8769), newcomb-wb@redstone.army.mil.

AMCOM points of contact

The U.S. Army Aviation and Missile Command (AMCOM) is now located at Redstone Arsenal, AL. The mailing address for all AMCOM correspondence is Commander, USAAMCOM, ATTN: (office symbol), Redstone Arsenal, AL 35898. The office symbol for aviation-specific issues is AMSAM-SF-A.

Safety-office

■ **AH-64 & AH-1:** Mr. Howard Chilton, DSN 746-7271 (256-876-7271), chilton-hl@redstone.army.mil

■ **UH-60:** Mr. Ed Goad, DSN 897-2095 (256-313-2095), goad-er@redstone.army.mil

■ **OH-58, fixed wing, UAV:** Mr. Ron Price, DSN 788-8636 (256-842-8636), price-sf@redstone.army.mil

■ **UH-1, RAH-66, ALSE:** Mr. Robert Brock, DSN 788-8632 (256-842-8632), brock-rd@redstone.army.mil

■ **CH-47:** Mr. Teng Ooi, DSN 897-2094 (256-313-2094), ooi-tk@redstone.army.mil

■ **SOF/ASAM compliance officer and e-mail/message distribution:** Mr. Ken Schnaare, DSN 788-8620 (256-842-8620), schnaare-kg@redstone.army.mil

■ **SOF/ASAM-compliance responses:** Address e-mail to safeadm@redstone.army.mil. Send postal mail ATTN: AMSAM-SF-A (SOF Compliance Officer). (Note that the message and mailing addresses differ from those in AR 95-1, chapter 6). Data fax number is DSN 897-2111 (256-313-2111).

■ **Aviation safety officer:** Mr. John Kavanaugh, DSN 897-2101 (256-313-2101), kavanaugh-jw@redstone.army.mil

■ **Radiation safety:** Ms. Joyce Kuykendall, DSN 746-7272 (256-876-7272), kuykendall-sf@redstone.army.mil

■ **Cat 1 deficiency reporting:** Ms. Denise Bouchard, AMSAM-AR-E-I-B-H, DSN 645-9735 (256-955-9735), fax DSN 645-9536 (256-955-9536), bouchard-de@redstone.army.mil

■ **Cat 2 deficiency reporting (EIR/QDR):** Mr. Ken Hudson, AMSAM-MMC-RE-FD, DSN 788-6665 (256-842-6665), fax DSN 746-4904 (256-876-4904), cfo@redstone.army.mil

Airworthiness releases

■ **AH-64:** Mr. Lee Bumbicka, AMSAM-AR-E-I-P-A, DSN 897-4925 (256-313-4925), fax DSN 897-4923 (256-313-4923), bumbickal@redstone.army.mil

■ **AH-1:** Ms. Denise Bouchard, AMSAM-AR-E-I-B-H, DSN 645-9735 (256-955-9735), fax DSN 645-9536 (256-955-9536), bouchard-de@redstone.army.mil

■ **OH-58A/C/D:** Mr. Gene Mergel, AMSAM-AR-E-I-B-O, DSN 645-9806 (256-955-9806), fax DSN 897-1874 (256-313-1874), mergel-em@redstone.army.mil

■ **CH-47:** Mr. Robert Lawyer, AMSAM-AR-EI-C-H, DSN 897-4284 (256-313-4284), fax DSN 897-4348 (256-313-4348), lawyerr@redstone.army.mil

■ **UH-60 and UH-1:** Mr. Jay Merkel, AMSAM-AR-E-I-C-U, DSN 645-0667 (256-955-0667), fax DSN 645-6590 (256-955-6590), merkelj@redstone.army.mil

■ **Fixed wing:** Mr. Paul Lutz, AMSAM-AR-E-I-F-W, DSN 645-0841 (256-955-0841), fax DSN 645-0887 (256-955-0887), lutz-pe@redstone.army.mil

Maintenance bulletin board system (BBS)

The BBS operator is Ms. Sybil Johnson, AMCOM Operations, AMSAM-MMC-RE-FD, DSN 746-0723 (256-876-0723), johnson-sd@redstone.army.mil. Individuals may access safety-of-flight and aviation-safety-action messages and other aviation maintenance information via the BBS. The BBS is also available to transfer data. Use a file transfer protocol (FTP) or dial-up modem to electronically access the BBS. The FTP address is 136.205.224.141. To access the BBS via modem, set modem software for 8-bit, no parity, one-stop bit, and either 9600, 2400, or 1200 baud rate. The phone number to access the BBS is DSN 897-9057 (256-313-9057). Use the log-in (lowercase letters) “guest”; no password is required. The BBS is operational 24 hours a day.

Other

■ **2410 hot line:** Mr. Willis Lucero, AMCOM Operations, AMSAM-MMC-RE-FD, duty hours DSN 897-2410 (256-313-2410), after hours DSN 788-6091 (256-842-6091), fax DSN 897-2075 (256-313-2075), data2410@redstone.army.mil

■ **Crashed, deteriorated, and retired aircraft (CDRA):** Mr. John Zuber, AMSAM-MMC-RE-FD, DSN 788-0860 (256-842-0860), fax DSN 746-4904 (256-876-4904), zuber-jw@redstone.army.mil

■ **2408-19-3 reporting:** Ms. Judy Lynn, AMSAM-MMC-RE-D, DSN 788-6705 (256-842-6705), fax DSN 788-7004 (256-842-7004), data2410@redstone .army.mil

■ **Specialized repair activities (SRA):** Mr. Ken Hudson, AMSAM-MMC-RE-FD, DSN 897-1658 (256-313-1658), fax DSN 788-6665 (256-842-6665), cfo@redstone.army.mil

■ **DA Pam 738-751:** Ms. Ann Waldeck, AMSAM-MMC-RE-FF, DSN 746-5564 (256-876-5564), fax DSN 746-4904 (256-876-4904), waldeck-ab@ redstone.army.mil

■ **Home page:** http://www.redstone. army.mil/

■ **Safety home page:** http://www.redstone.army .mil/safety/home.html

■ **Quarterly summary of ASAMs and SOF messages:** May be accessed via the safety home page. Text of individual messages reside in the maintenance BBS (see instructions above).

■ **Command operations center:** Operational 24-hours a day to help resolve aviation- and missile-related problems. DSN 897-2066/2067 (256-313-2066/2067), fax DSN 788-8176 (256-842-8176), amsamcoc@redstone.army.mil

POC: Mr. Jim Wilkins, AMCOM, DSN 897-2098 (256-313-2098), wilkins-jk@redstone.army.mil

1997 AAAA awards

Congratulations to the 1997 Army Aviation Association of America national award winners.

■ **Outstanding Aviation Unit of the Year (Active):** 1st Battalion, 1st Aviation Regiment Aviation Brigade, 1st Infantry Division, APO AE 09250. LTC John M. Kelley, commander; CSM Donald K. Henry, senior NCO.

■ **Outstanding Aviation Unit of the Year (ARNG):** 126th Medical Company (AA), Mather, CA. MAJ Manuel Anthony Lascano, commander; 1SG Eugene Joe Baker, senior NCO.

■ **Outstanding Aviation Unit of the Year (USAR):** B Company, 6-52nd Aviation (TA), Dobbins AFB, GA. 1LT Michael J. Livatino, commander; SPC Zachary K. Taylor, senior NCO.

■ **Army Aviator of the Year:** CW4 Michael E. Sheldon, D Troop, 1st Squadron, 10th Cavalry Aviation Brigade, 4th Infantry Division, Fort Hood, TX.

■ **Aviation Soldier of the Year:** SPC Michael R. Swingle, D Company (AMC), 82nd Aviation Brigade, Fort Bragg, NC.

■ **James H. McClellan Aviation Safety Award:** CW4(P) John H. Aberg, 160th Special Operations Aviation Regiment (Airborne), Fort Campbell, KY.

■ **Robert M. Leich Award:** Directorate of Combat Developments, U.S. Army Aviation Center, Fort Rucker, AL. COL Jesse M. Danielson, director; MSG Donald D. Altgilbers, senior NCO.

■ **Joseph P. Cribbins Department of the Army Civilian of the Year:** Mrs. Diane Ottolini, formerly with U.S. Army Aviation and Missile Command, Chesterfield, MO.

Accident briefs

Information based on *preliminary* reports of aircraft accidents

AH1

Class C

S series

■ During NOE flight at 25 feet and 25 knots during NVG test assessment under zero illumination, main rotor blades hit pine tree. Damage to both main rotor blades was found upon shutdown.

Class D

S series

■ Uncommanded yaw to left occurred during flight in light turbulence. When aircraft landed, crew found that left-hand exhaust duct clamp and extension were missing and left synch elevator was damaged.

Class E

F series

■ Aircraft was NOE at 20 knots and was just starting climb when engine was heard increasing and both rotor and N2 rpm began rising. When PI increased collective to control rotor and decreased throttle to control N2, low rpm audio sounded. Rotor was stabilized, but N2 had dropped to zero, N1 was steady, and torque had dropped to zero. PI was able to control rpm with manual throttle, so emergency governor operations were not performed. Aircraft returned to heliport and PI made running landing without incident. Caused by failure of N2 accessory gearbox shaft.

AH64

Class C

A series

■ Irregular puncture (0.5” x 0.125”) was discovered in one tail rotor blade during routine maintenance. Last flight had been 9 days earlier. Blade was replaced and aircraft released for flight. Cause unknown.

Class E

A series

■ Pilot noted excessive sand and dirt in vicinity of engine nacelle during preflight. Pilot cleaned area, then cranked. Hearing intermittent noise, pilot shut down No. 1 engine. Maintenance replaced engine.

■ During ATM training in traffic pattern, SP entered standard autorotation. At 400 feet agl, No. 1 engine failed. IP took controls and made single-engine landing. Caused by clogged fuel filter to No. 1 engine.

■ During descent to terrain flight mission profile, pilot’s ICS failed. He was able to hear but unable to transmit on radios or talk to CPG. Maintenance replaced ICS junction box.

■ No. 1 engine failed at 400 feet agl during simulated autorotation. PI executed roll-on landing and ground taxied aircraft to parking without incident. Engine failed due to anti-ice start bleed valve or binding VG system suddenly breaking free.

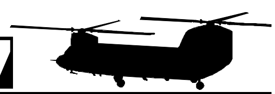
■ During ground taxi, both crewmembers detected electrical burning odor in cockpits and conducted emergency shutdown. Caused by No. 1 generator failure. Generator was replaced.

Class F

A series

■ After swashplate maintenance during unit aerial gunnery training, maintenance pilot flew aircraft back to home station without incident. Two days later, tech inspector discovered metal fragments on lower nacelle panel. Further inspection revealed two 2-inch holes and two deep indentations in inlet particle duct assembly. Engine was not damaged.

CH47



Class A

D series

■ While returning from disaster relief mission, helicopter was hit by civilian fixed-wing aircraft. Chinook crew executed precautionary landing; aircraft was damaged on right side at water line in area of ramp. Fixed-wing aircraft crashed, killing one civilian. Accident is under investigation.

Class C

D series

■ During left cross-slope landing, drag link on left aft landing gear failed. Aircraft was brought to hover and brake-steer isolation switch was turned off to stop hydraulic fluid loss. As immediate landing was not possible without support equipment, flight was continued to home base. Aircraft was landed without further incident, using tires to support left aft portion of aircraft.

■ Aircraft experienced rotor overspeed of 120 percent for 1 second during engine runup/fuel cross-feed check in preparation for flight. Crew executed emergency shutdown. Engine inspection is pending.

Class E

D series

■ During main-rotor track and balance in cruise flight at 1000 feet and 80 knots, both left- and right-hand bubble windows exited aircraft. Cause not reported.

■ When right rear landing gear contacted ground during landing, spindle housing failed. Aircraft started to roll right, and utility hydraulic caution light came on. Pilot executed go-around to stop roll, and flight engineer advised pilot that right aft landing gear had broken off and was hanging below aircraft. En route to airfield determined by pilot and unit commander as safest place to land, landing gear fell off. Upon arrival, ground crew had built platform of railroad ties, the only material available to block up aircraft. However, ties shifted during first landing attempt, and PC determined that structure was not stable enough to shut down upon. He was able to stabilize aircraft on the three remaining gears to allow passengers to disembark from cabin door. He then repositioned aircraft and ground crew rebuilt structure. On second attempt to land, crew felt aircraft was stable enough and completed emergency shutdown. Railroad ties caused some damage to aircraft sheet metal and rescue door.

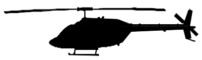
OH6

Class D

J series

■ Tail stinger contacted ground during standard autorotation to runway. Impact resulted in loss of tail stinger and damage to tail-rotor assembly.

OH58



Class C

D(I) series

■ Aircraft had earlier experienced Class C accident due to engine and mast overtorque. About 8 weeks later, during post-maintenance MTF autorotational check, engine reportedly flamed out. Aircraft landed hard, damaging landing gear.

Class E

C series

■ DC generator failed in flight. Aircraft landed without incident. Maintenance replaced generator.

D(I) series

■ During 50-caliber live fire, left door vibrated loose and fell from aircraft. Door was punctured by one round. Crew landed, shut down, and inspected aircraft. No other damage was found. Maintenance repaired and reinstalled door.

Class F

D(I) series

■ **(Engine FOD)** During MOC with engine operating at 100 percent, maintenance personnel alerted pilot to shut down engine due to loud popping noises and a yellowish dust exiting the compressor bleed port hose. Inspection revealed compressor shipping dust-cover partially ingested through compressor. Engine will be replaced.

UH1

Class E

H series

■ Pilot felt resistance in cyclic controls during climb and returned to airfield without incident. Maintenance confirmed binding fore and aft cyclic. Jack-shaft bearings were replaced.

■ During cruise flight, master caution light flickered with no caution segment light. Postflight inspection revealed that wire insulation had worn through in channel between pilot and copilot windshield and was grounding out intermittently due to aircraft vibration. Maintenance replaced wire.

UH60

Class A

L series

■ During aerial recon mission, tail rotor of lead aircraft in flight of two reportedly struck wires at 200 to 300 feet. Aircraft descended in slow, controlled spin and crashed through trees. All passengers and crewmembers were injured, one critically. Tail boom was severed upon contact with trees.

■ During MOC following installation of fuel filter to No. 2 engine, gust lock reportedly failed and main-rotor system engaged. Crew chief, who was positioned on No. 2 engine cowling, was killed when struck by main-rotor blades. Pilot, positioned inside aircraft at controls, also sustained fatal head injures. Second crew chief was injured. Aircraft was destroyed.

Class C

A series

■ During NVG orientation flight in desert environment, rough landing caused main rotor blades to contact ALQ-144, causing damage to all four main rotor blades.

Class D

A series

■ Postflight inspection after confined area operations revealed significant damage to three main rotor blade tip caps. Crew did not notice any indication of tree strike in flight. Tip caps were replaced.

L series

■ During maintenance in hangar, tiedown strap was attached to one blade for rotation purposes. After maintenance, aircraft was moved outside for MOC. Upon runup of one engine and engagement of main-rotor system, tiedown, which had not been removed, contacted tail rotor. Tail rotor and associated components were damaged.

Class E

A series

■ During postflight, 3-inch-diameter hole was found on belly of aircraft just inside right main landing gear strut. Suspect damage occurred during blowing-snow approach to sloping and rough landing zone.

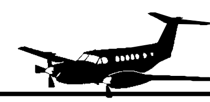
■ While repositioning for departure, Chalk 2 hover taxied over 10-foot-deep ditch, which increased his hover height to 25 feet agl. At the same time, the aircraft entered Chalk 1's rotor wash. This greatly increased the induced flow within his rotor system, which was further aggravated by operating at just below maximum gross weight with a 5-knot left-rear quartering tailwind. These conditions combined to reduce lift, which resulted in loss of rotor rpm and hard landing.

L series

■ PC was attempting an NVG landing in dusty conditions under zero illumination in an LZ that had not been reconned. Aircraft landed on rock, which punctured softball-size hole in bottom of aircraft between main landing gears.

■ During passenger unloading, VS-17 panel marker dislodged from soldier's rucksack and went through main-rotor blades. One blade was damaged.

C12



Class E

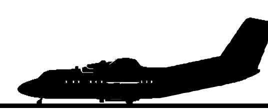
F series

■ While applying brakes after landing, right brake pedal moved fully forward with no effect. Inspection revealed packing O-ring failed, causing hydraulic brake failure.

G series

■ During No. 2 engine start, compressor stalled multiple times. Inspection revealed metal chips on oil filter. Engine was replaced.

O5



Class C

DHC-7

■ During taxi for takeoff after refueling en route, right wing tip contacted 35- to 40-foot tree. PC aborted takeoff and returned to parking. Right wing tip and aileron and one antenna were damaged.

For more information on selected accident briefs, call DSN 558-2785 (334-255-2785). Note: Information published in this section is based on ***preliminary*** *mishap reports submitted by units and is subject to change.*

Aviation messages

Recap of selected aviation safety messages

Aviation safety-action messages

AH-64-98-ASAM-03, 022136Z Feb 98, operational

At least two inadvertent rocket launches have been reported recently. A potential for inadvertent rocket launches exists due to a combination of aircraft switch positions and an aerial rocket control system (ARCS) panel hardware design issue. An inadvertent rocket launch can occur if the ARCS panel and station directors are powered up on the ground by selecting "ground override" or at liftoff when "armed" power is restored by the squat switch. When power is initiated the ARCS panel initiates its internal built-in test routine. During about one in eighty tests, the ARCS panel will send a drive trigger signal to one or more of the station directors. This signal could fire a rocket if the pilot's master arm switch or the copilot's arm/safe switch is in the "arm" position. When either switch is in the "safe" or "off" position, no inadvertent rocket launch can occur.

The purpose of this message is to ensure that all AH-64 flight crew personnel are familiar with the procedures and timing sequences required in selecting and deselecting the "arm" position of the pilot and copilot/gunner fire control panel switches to prevent accidental launch of onboard rockets. It also emphasizes the importance of maintaining a "safe" selection on the pilot and CPG arm/safe switch when use of live armament is not imminent, particularly in a training environment.

AMCOM contact: Mr. Howard Chilton, DSN 746-7271 (205-876-7271), chilton-hl@redstone.army.mil

AH-64-98-ASAM-04, 241907Z Feb 98, maintenance mandatory

This message deals with two components: the main-rotor strap pack and the lead lag-link assembly. Cracks may develop around the inner diameter of the outboard main-rotor strap pack bolt, and some teflon liners in sleeve bearings of the lead lag-link (P/N 7-311411155-11) are deteriorating after a short period of use. All premature sleeve bearing failures have been traced to a single vendor, Southwest Products (SWPCO, cage 81376).

The purpose of this message is to direct—

- One-time and recurring inspections of all strap pack outboard bolts for cracks. All strap packs with flight hours will be inspected within the next 50 flight hours and each 125 flight hours thereafter. (These inspection intervals were chosen to allow aligning the inspections with scheduled phase maintenance. Every effort should be made to coordinate inspections so that all strap packs on each main rotor hub assembly are inspected at the same time.)
- A one-time inspection of all AH-64 aircraft to determine presence of 7-311411155-11 lead lag links containing sleeve bearings manufactured by Southwest Products.

AMCOM contact: Mr. Howard Chilton, DSN 746-7271 (205-876-7271), chilton-hl@redstone.army.mil

POV-fatality update through February

- No seatbelt
- Speed
- Fatigue

No new causes, just new victims.

FY98 = 50

FY97 = 27

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Class A Accidents through February

		Class A Flight Accidents		Army Military Fatalities	
		97	98	97	98
1ST QTR	October	0	2	0	0
	November	0	1	0	0
	December	1	2	0	2
2D QTR	January	2	2	2	0
	February	0	0	0	0
	March	2		1	
3D QTR	April	2		2	
	May	1		1	
	June	3		0	
4TH QTR	July	1		8	
	August	0		0	
	September	0		0	
	TOTAL	12	7	14	2

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